

## SEQUENCE LISTING

<110> BOYLE, WILLIAM

<120> OSTEOPROTEGERIN BINDING PROTEINS AND RECEPTORS

<130> A-451K REV 09-10-03 54SEQ

<140> US 09/721,212

<141> 2000-11-21

<150> US 09/052,521

<151> 1998-03-30

<150> US 08/880,855

<151> 1997-06-23

<150> US 08/842,842

<151> 1997-04-16

<160> 54

<170> PatentIn version 3.1

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Phe Arg Ala Gln Met Asp Pro Asn Arg Ile Ser Glu Asp Ser Thr His  
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Cys Phe Tyr Arg Ile Leu Arg Leu His Glu Asn Ala Gly Leu Gln Asp  
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115 120 125

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Gly Ser His Lys Val Thr Leu Ser Ser Trp Tyr His Asp Arg Gly Trp  
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Ala Lys Ile Ser Asn Met Thr Leu Ser Asn Gly Lys Leu Arg Val Asn  
195 200 205

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Val Val Lys Thr Ser Ile Lys Ile Pro Ser Ser His Asn Leu Met Lys  
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Gly Gly Ser Thr Lys Asn Trp Ser Gly Asn Ser Glu Phe His Phe Tyr  
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Ser Ile Asn Val Gly Gly Phe Phe Lys Leu Arg Ala Gly Glu Glu Ile  
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35 40 45

Phe Val Ala Leu Leu Gly Leu Gly Leu Gly Gln Val Val Cys Ser Val  
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Ala Leu Phe Phe Tyr Phe Arg Ala Gln Met Asp Pro Asn Arg Ile Ser  
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Glu Asp Gly Thr His Cys Ile Tyr Arg Ile Leu Arg Leu His Glu Asn  
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Ala Asp Phe Gln Asp Thr Thr Leu Glu Ser Gln Asp Thr Lys Leu Ile  
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Pro Asp Ser Cys Arg Arg Ile Lys Gln Ala Phe Gln Gly Ala Val Gln  
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Lys Glu Leu Gln His Ile Val Gly Ser Gln His Ile Arg Ala Glu Lys  
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Ala Met Val Asp Gly Ser Trp Leu Asp Leu Ala Lys Arg Ser Lys Leu  
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Ser Gly Ser His Lys Val Ser Leu Ser Ser Trp Tyr His Asp Arg Gly  
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Trp Ala Lys Ile Ser Asn Met Thr Phe Ser Asn Gly Lys Leu Ile Val  
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Asn Gln Asp Gly Phe Tyr Tyr Leu Tyr Ala Asn Ile Cys Phe Arg His  
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His Glu Thr Ser Gly Asp Leu Ala Thr Glu Tyr Leu Gln Leu Met Val  
225 230 235 240

Tyr Val Thr Lys Thr Ser Ile Lys Ile Pro Ser Ser His Thr Leu Met  
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Lys Gly Gly Ser Thr Lys Tyr Trp Ser Gly Asn Ser Glu Phe His Phe  
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Tyr Ser Ile Asn Val Gly Gly Phe Phe Lys Leu Arg Ser Gly Glu Glu  
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agcttctggg ttgtccattc aatgatgtcc aggagcacca ggagtgcgca gcacagccac 60  
ttgttcatgg tg 72

<210> 41  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide

<400> 41

Met Asp Pro Asn Arg Gln Asp Ile Asp  
1 5

<210> 42

<211> 2071

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide

<220>

<221> CDS

<222> (36)..(1910)

<223>

<400> 42

actcgacc ca cgcgtccgccc cgccccgc acc gcgcc atg gac ccg cgc gcc cgg 53  
Met Asp Pro Arg Ala Arg  
1 5

cgg cgc cgc cag ctg ccc gcg ccg ctg ctg gcg ctc tgc gtg ctg ctc 101  
Arg Arg Arg Gln Leu Pro Ala Pro Leu Leu Ala Leu Cys Val Leu Leu  
10 15 20

gtt cca ctg cag gtg act ctc cag gtc act cct cca tgc acc cag gag 149  
Val Pro Leu Gln Val Thr Leu Gln Val Thr Pro Pro Cys Thr Gln Glu  
25 30 35

agg cat tat gag cat ctc gga cgg tgt tgc agc aga tgc gaa cca gga 197  
Arg His Tyr Glu His Leu Gly Arg Cys Cys Ser Arg Cys Glu Pro Gly  
40 45 50

aag tac ctg tcc tct aag tgc act cct acc tcc gac agt gtg tgt ctg 245  
Lys Tyr Leu Ser Ser Lys Cys Thr Pro Thr Ser Asp Ser Val Cys Leu  
55 60 65 70

ccc tgt ggc ccc gat gag tac ttg gac acc tgg aat gaa gaa gat aaa 293  
Pro Cys Gly Pro Asp Glu Tyr Leu Asp Thr Trp Asn Glu Glu Asp Lys  
75 80 85

tgc ttg ctg cat aaa gtc tgt gat gca ggc aag gcc ctg gtg gcg gtg 341  
Cys Leu Leu His Lys Val Cys Asp Ala Gly Lys Ala Leu Val Ala Val  
90 95 100

gat cct ggc aac cac acg gcc ccg cgt cgc tgt gct tgc acg gct ggc 389

Asp Pro Gly Asn His Thr Ala Pro Arg Arg Cys Ala Cys Thr Ala Gly			
105	110	115	
tac cac tgg aac tca gac tgc gag tgc tgc cgc agg aac acg gag tgt			437
Tyr His Trp Asn Ser Asp Cys Glu Cys Cys Arg Arg Asn Thr Glu Cys			
120	125	130	
gca cct ggc ttc gga gct cag cat ccc ttg cag ctc aac aag gat acg			485
Ala Pro Gly Phe Gly Ala Gln His Pro Leu Gln Leu Asn Lys Asp Thr			
135	140	145	150
gtg tgc aca ccc tgc ctc ctg ggc ttc ttc tca gat gtc ttt tcg tcc			533
Val Cys Thr Pro Cys Leu Leu Gly Phe Phe Ser Asp Val Phe Ser Ser			
155	160	165	
aca gac aaa tgc aaa cct tgg acc aac tgc acc ctc ctt gga aag cta			581
Thr Asp Lys Cys Lys Pro Trp Thr Asn Cys Thr Leu Leu Gly Lys Leu			
170	175	180	
gaa gca cac cag ggg aca acg gaa tca gat gtg gtc tgc agc tct tcc			629
Glu Ala His Gln Gly Thr Thr Glu Ser Asp Val Val Cys Ser Ser Ser			
185	190	195	
atg aca ctg agg aga cca ccc aag gag gcc cag gct tac ctg ccc agt			677
Met Thr Leu Arg Arg Pro Pro Lys Glu Ala Gln Ala Tyr Leu Pro Ser			
200	205	210	
ctc atc gtt ctg ctc ctc ttc atc tct gtg gta gta gtg gct gcc atc			725
Leu Ile Val Leu Leu Phe Ile Ser Val Val Val Ala Ala Ile			
215	220	225	230
atc ttc ggc gtt tac tac agg aag gga ggg aaa gcg ctg aca gct aat			773
Ile Phe Gly Val Tyr Tyr Arg Lys Gly Gly Lys Ala Leu Thr Ala Asn			
235	240	245	
ttg tgg aat tgg gtc aat gat gct tgc agt agt cta agt gga aat aag			821
Leu Trp Asn Trp Val Asn Asp Ala Cys Ser Ser Leu Ser Gly Asn Lys			
250	255	260	
gag tcc tca ggg gac cgt tgt gct ggt tcc cac tcg gca acc tcc agt			869
Glu Ser Ser Gly Asp Arg Cys Ala Gly Ser His Ser Ala Thr Ser Ser			
265	270	275	
cag caa gaa gtg tgt gaa ggt atc tta cta atg act cgg gag gag aag			917
Gln Gln Glu Val Cys Glu Gly Ile Leu Leu Met Thr Arg Glu Glu Lys			
280	285	290	
atg gtt cca gaa gac ggt gct gga gtc tgt ggg cct gtg tgt gcg gca			965
Met Val Pro Glu Asp Gly Ala Gly Val Cys Gly Pro Val Cys Ala Ala			
295	300	305	310
ggt ggg ccc tgg gca gaa gtc aga gat tct agg acg ttc aca ctg gtc			1013
Gly Gly Pro Trp Ala Glu Val Arg Asp Ser Arg Thr Phe Thr Leu Val			
315	320	325	
agc gag gtt gag acg caa gga gac ctc tcg agg aag att ccc aca gag			1061
Ser Glu Val Glu Thr Gln Gly Asp Leu Ser Arg Lys Ile Pro Thr Glu			
330	335	340	
gat gag tac acg gac cgg ccc tcg cag cct tcg act ggt tca ctg ctc			1109
Asp Glu Tyr Thr Asp Arg Pro Ser Gln Pro Ser Thr Gly Ser Leu Leu			
345	350	355	
cta atc cag cag gga agc aaa tct ata ccc cca ttc cag gag ccc ctg			1157

Leu Ile Gln Gln Gly Ser Lys Ser Ile Pro Pro Phe Gln Glu Pro Leu			
360	365	370	
gaa gtg ggg gag aac gac agt tta agc cag tgt ttc acc ggg act gaa			1205
Glu Val Gly Glu Asn Asp Ser Leu Ser Gln Cys Phe Thr Gly Thr Glu			
375	380	385	390
agc acg gtg gat tct gag ggc tgt gac ttc act gag cct ccg agc aga			1253
Ser Thr Val Asp Ser Glu Gly Cys Asp Phe Thr Glu Pro Pro Ser Arg			
395	400	405	
act gac tct atg ccc gtg tcc cct gaa aag cac ctg aca aaa gaa ata			1301
Thr Asp Ser Met Pro Val Ser Pro Glu Lys His Leu Thr Lys Glu Ile			
410	415	420	
gaa ggt gac agt tgc ctc ccc tgg gtg gtc agc tcc aac tca aca gat			1349
Glu Gly Asp Ser Cys Leu Pro Trp Val Val Ser Ser Asn Ser Thr Asp			
425	430	435	
ggc tac aca ggc agt ggg aac act cct ggg gag gac cat gaa ccc ttt			1397
Gly Tyr Thr Gly Ser Gly Asn Thr Pro Gly Glu Asp His Glu Pro Phe			
440	445	450	
cca ggg tcc ctg aaa tgg gga cca ttg ccc cag tgt gcc tac agc atg			1445
Pro Gly Ser Leu Lys Cys Gly Pro Leu Pro Gln Cys Ala Tyr Ser Met			
455	460	465	470
ggc ttt ccc agt gaa gca gca gcc agc atg gca gag gcg gga gta cg			1493
Gly Phe Pro Ser Glu Ala Ala Ser Met Ala Glu Ala Gly Val Arg			
475	480	485	
ccc cag gac agg gct gat gag agg gga gcc tca ggg tcc ggg agc tcc			1541
Pro Gln Asp Arg Ala Asp Glu Arg Gly Ala Ser Gly Ser Ser			
490	495	500	
ccc agt gac cag cca cct gcc tct ggg aac gtg act gga aac agt aac			1589
Pro Ser Asp Gln Pro Pro Ala Ser Gly Asn Val Thr Gly Asn Ser Asn			
505	510	515	
tcc acg ttc atc tct agc ggg cag gtg atg aac ttc aag ggt gac atc			1637
Ser Thr Phe Ile Ser Ser Gly Gln Val Met Asn Phe Lys Gly Asp Ile			
520	525	530	
atc gtg gtg tat gtc agc cag acc tcg cag gag ggc ccc ggt tcc gca			1685
Ile Val Val Tyr Val Ser Gln Thr Ser Gln Glu Gly Pro Gly Ser Ala			
535	540	545	550
gag ccc gag tcg gag ccc gtg ggc cgc cct gtg cag gag gag acg ctg			1733
Glu Pro Glu Ser Glu Pro Val Gly Arg Pro Val Gln Glu Glu Thr Leu			
555	560	565	
gca cac aga gac tcc ttt gcg ggc acc gcg ccg cgc ttc ccc gac gtc			1781
Ala His Arg Asp Ser Phe Ala Gly Thr Ala Pro Arg Phe Pro Asp Val			
570	575	580	
tgt gcc acc ggg gct ggg ctg cag gag cag ggg gca ccc cgg cag aag			1829
Cys Ala Thr Gly Ala Gly Leu Gln Glu Gln Gly Ala Pro Arg Gln Lys			
585	590	595	
gac ggg aca tcg cgg ccg gtg cag gag cag ggt ggg gcg cag act tca			1877
Asp Gly Thr Ser Arg Pro Val Gln Glu Gln Gly Ala Gln Thr Ser			
600	605	610	
ctc cat acc cag ggg tcc gga caa tgt gca gaa tgacctcacc ttctctgtct			1930

Leu His Thr Gln Gly Ser Gly Gln Cys Ala Glu  
615 620 625  
gccctgggtg cagggcacca gtgccttcc aaaaacatgg ttagctgcac 1990  
ctcctcaactg gtgcaggctg ctggcatggt gatggagccc acctctcaact tcctccagtg 2050  
ccccctccct ctgcctcccta c 2071

<210> 43

<211> 625

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide

<400> 43

Met Asp Pro Arg Ala Arg Arg Arg Gln Leu Pro Ala Pro Leu Leu  
1 5 10 15

Ala Leu Cys Val Leu Leu Val Pro Leu Gln Val Thr Leu Gln Val Thr  
20 25 30

Pro Pro Cys Thr Gln Glu Arg His Tyr Glu His Leu Gly Arg Cys Cys  
35 40 45

Ser Arg Cys Glu Pro Gly Lys Tyr Leu Ser Ser Lys Cys Thr Pro Thr  
50 55 60

Ser Asp Ser Val Cys Leu Pro Cys Gly Pro Asp Glu Tyr Leu Asp Thr  
65 70 75 80

Trp Asn Glu Glu Asp Lys Cys Leu Leu His Lys Val Cys Asp Ala Gly  
85 90 95

Lys Ala Leu Val Ala Val Asp Pro Gly Asn His Thr Ala Pro Arg Arg  
100 105 110

Cys Ala Cys Thr Ala Gly Tyr His Trp Asn Ser Asp Cys Glu Cys Cys  
115 120 125

Arg Arg Asn Thr Glu Cys Ala Pro Gly Phe Gly Ala Gln His Pro Leu  
130 135 140

Gln Leu Asn Lys Asp Thr Val Cys Thr Pro Cys Leu Leu Gly Phe Phe  
145 150 155 160

Ser Asp Val Phe Ser Ser Thr Asp Lys Cys Lys Pro Trp Thr Asn Cys  
165 170 175

Thr Leu Leu Gly Lys Leu Glu Ala His Gln Gly Thr Thr Glu Ser Asp  
180 185 190

Val Val Cys Ser Ser Ser Met Thr Leu Arg Arg Pro Pro Lys Glu Ala  
195 200 205

Gln Ala Tyr Leu Pro Ser Leu Ile Val Leu Leu Phe Ile Ser Val  
210 215 220

Val Val Val Ala Ala Ile Ile Phe Gly Val Tyr Tyr Arg Lys Gly Gly  
225 230 235 240

Lys Ala Leu Thr Ala Asn Leu Trp Asn Trp Val Asn Asp Ala Cys Ser  
245 250 255

Ser Leu Ser Gly Asn Lys Glu Ser Ser Gly Asp Arg Cys Ala Gly Ser  
260 265 270

His Ser Ala Thr Ser Ser Gln Gln Glu Val Cys Glu Gly Ile Leu Leu  
275 280 285

Met Thr Arg Glu Glu Lys Met Val Pro Glu Asp Gly Ala Gly Val Cys  
290 295 300

Gly Pro Val Cys Ala Ala Gly Gly Pro Trp Ala Glu Val Arg Asp Ser  
305 310 315 320

Arg Thr Phe Thr Leu Val Ser Glu Val Glu Thr Gln Gly Asp Leu Ser  
325 330 335

Arg Lys Ile Pro Thr Glu Asp Glu Tyr Thr Asp Arg Pro Ser Gln Pro  
340 345 350

Ser Thr Gly Ser Leu Leu Ile Gln Gln Gly Ser Lys Ser Ile Pro  
355 360 365

Pro Phe Gln Glu Pro Leu Glu Val Gly Glu Asn Asp Ser Leu Ser Gln  
370 375 380

Cys Phe Thr Gly Thr Glu Ser Thr Val Asp Ser Glu Gly Cys Asp Phe  
385 390 395 400

Thr Glu Pro Pro Ser Arg Thr Asp Ser Met Pro Val Ser Pro Glu Lys  
405 410 415

His Leu Thr Lys Glu Ile Glu Gly Asp Ser Cys Leu Pro Trp Val Val  
420 425 430

Ser Ser Asn Ser Thr Asp Gly Tyr Thr Gly Ser Gly Asn Thr Pro Gly  
435 440 445

Glu Asp His Glu Pro Phe Pro Gly Ser Leu Lys Cys Gly Pro Leu Pro  
450 455 460

Gln Cys Ala Tyr Ser Met Gly Phe Pro Ser Glu Ala Ala Ala Ser Met  
465 470 475 480

Ala Glu Ala Gly Val Arg Pro Gln Asp Arg Ala Asp Glu Arg Gly Ala  
485 490 495

Ser Gly Ser Gly Ser Ser Pro Ser Asp Gln Pro Pro Ala Ser Gly Asn  
500 505 510

Val Thr Gly Asn Ser Asn Ser Thr Phe Ile Ser Ser Gly Gln Val Met  
515 520 525

Asn Phe Lys Gly Asp Ile Ile Val Val Tyr Val Ser Gln Thr Ser Gln  
530 535 540

Glu Gly Pro Gly Ser Ala Glu Pro Glu Ser Glu Pro Val Gly Arg Pro  
545 550 555 560

Val Gln Glu Glu Thr Leu Ala His Arg Asp Ser Phe Ala Gly Thr Ala  
565 570 575

Pro Arg Phe Pro Asp Val Cys Ala Thr Gly Ala Gly Leu Gln Glu Gln  
580 585 590

Gly Ala Pro Arg Gln Lys Asp Gly Thr Ser Arg Pro Val Gln Glu Gln  
595 600 605

Gly Gly Ala Gln Thr Ser Leu His Thr Gln Gly Ser Gly Gln Cys Ala  
610 615 620

Glu  
625

<210> 44

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide

<400> 44

Met His Glu Asn Ala Gly Gln Asp Ile Asp  
1 5 10

<210> 45

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide

<400> 45

Met Ser Glu Asp Thr Leu Gln Asp Ile Asp  
1 5 10

<210> 46

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide

<400> 46

Met Lys Gln Ala Phe Gln Gln Asp Ile Asp  
1 5 10

<210> 47

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide

<400> 47

Met Lys Glu Leu Gln His Gln Asp Ile Asp  
1 5 10

<210> 48

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide

<400> 48

Met Gln Arg Phe Ser Gly Gln Asp Ile Asp  
1 5 10

<210> 49

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide

<400> 49

Met Glu Gly Ser Trp Gln Asp Ile Asp  
1 5

<210> 50

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide

<400> 50

Met Arg Gly Lys Pro Gln Asp Ile Asp  
1 5

<210> 51

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide

<400> 51

Met Lys Pro Glu Ala Gln Asp Ile Asp  
1 5

<210> 52

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide

<400> 52

Met His Leu Thr Ile Gln Asp Ile Asp  
1 5

<210> 53

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide

<400> 53

Met Thr Ile Asn Ala Gln Asp Ile Asp  
1 5

<210> 54

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide

<400> 54

Lys Leu Val Thr Leu Gln Val Thr Pro  
1 5